

Round Goby

FACT SHEET

Pennsylvania Sea Grant, as part of the National Sea Grant Program, promotes efforts to improve the environmental and economic health of Pennsylvania's coastlines.

Focusing on the Lake Erie and Delaware River watersheds, Pennsylvania Sea Grant works to increase public awareness of coastal environmental and economic issues through extension, communication, applied research, and education activities.

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Background

Flourishing in the Great Lakes Basin, the round goby (*Neogobius melanostomus*) is a small bottom-dwelling fish with a large head resembling that of a tadpole (Figure 1). The round goby is an aggressive, greedy feeder that can forage in total darkness. First discovered in Lake St. Clair in 1990, presumably introduced through the ballast water of transoceanic vessels traveling from the Black and Caspian Sea areas of Eastern Europe, the round goby has spread throughout the Great Lakes and into many rivers, including the Mississippi watershed (Figure 2).



Figure 1. Round goby: Image courtesy of USGS NAS Web site: <http://nas.er.usgs.gov/queries/SpFactSheet.asp?speciesID=713>



Figure 2. 2002 Distribution of the Round Goby: Image courtesy of USGS NAS Web site: <http://nas.er.usgs.gov/queries/SpFactSheet.asp?speciesID=713>

Round gobies can reach up to 10 inches in length as adults but usually are less than 7 inches in the Great Lakes. Females and immature male round gobies are a mottled gray and brown color. Spawning males turn almost solid black. Round gobies have a soft body and a large, round head with eyes that stick out near the top. They look similar to native sculpin, but the two species can be easily separated by the fused pelvic fins on the underside of round gobies (Figure 3). Sculpin have two separate

pelvic fin, not one large fin. This fin can be used by gobies as a suction cup to anchor to rocks and other hard substrates during times of high water flow.

Impacts Competing with native fish for habitat and choice spawning sites, the round goby changes the balance of the ecosystem. It prefers rocky, cobble surroundings and feeds on benthic (bottom dwelling) invertebrates, fish eggs, and other small fish. Because of its competitive advantages and aggressive behavior the round goby is displacing other bottom-dwelling fish, like mottled sculpin, log perch, and darters. The goby is highly prolific and can spawn up to five times during the spawning season (April-September), and can survive in degraded water conditions.

Zebra mussels are an important component of the gobies' diet in their native range, and in laboratory studies a single round goby has been shown to eat up to 78 zebra mussels a day. However, it is unlikely that gobies alone will have a detectable impact on zebra mussels because of the mussels' ability to reproduce millions of offspring per year.

Sport fish found to prey on gobies include smallmouth bass, rockbass, walleye, yellow perch, and burbot. There is a great concern about sport fish preying on round gobies because of bioaccumulation of contaminants in their flesh. Since the diet of round gobies consists predominately of zebra mussels, which accumulate PCBs and other contaminants, there may be a direct transfer of contaminants from gobies to sport fish. This in turn may lead to more restrictive fish consumption advisories for sport fish.

Gobies have also become a nuisance to anglers, especially perch anglers whose tactics are to fish the bottom of the lake. Anglers complain that they catch many gobies while fishing for perch and constantly have to re-bait because the gobies steal the bait from their hooks. This problem has caused perch anglers to change their fishing technique from bottom fishing to fishing several feet above the bottom. Anglers fishing baited lures for smallmouth bass and walleye also routinely catch gobies.

Stopping the Spread Round gobies may be accidentally transported in live wells, bait buckets, wild bait harvest, and in the ballast water of Great Lakes freighters. Gobies should not be transported from the Lake Erie basin.

Information for this fact sheet was adapted from a variety of sources, including:

The Great Lakes Information Network - www.great-lakes.net

Sea Grant Nonindigenous Species Site (SGNIS) - www.sgnis.org

Great Lakes Sea Grant Network - www.uaf.edu/seagrant/private/SG-regional/greatlakes/index.html

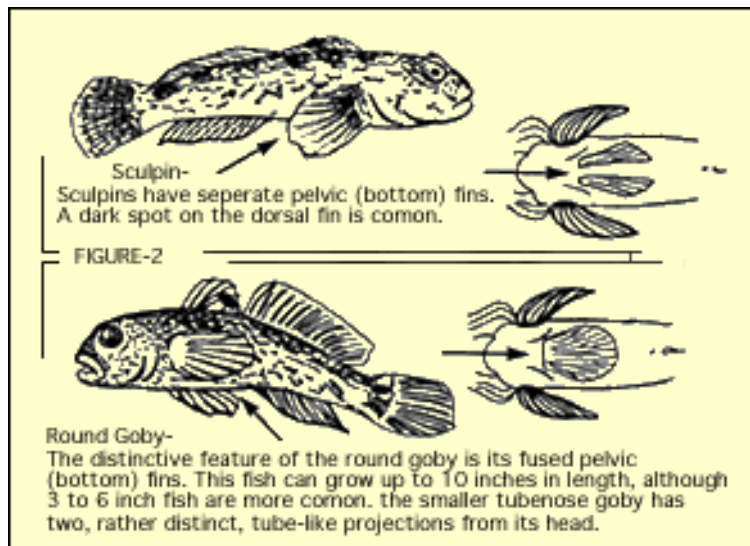


Figure 3. Comparative external anatomy of the round goby: Images courtesy of the Stop Aquatic Hitchhikers Web site: http://www.protectyourwaters.net/hitchhikers/fish_round_goby.php#prevent